

WHAT IS CLAIMED IS:

1. A method for creating a lateral overflow drain, anti-blooming structure in a charge coupled device, the method comprising the steps of:

- (a) providing a substrate of a first conductivity type;
- (b) providing a layer of silicon dioxide on the substrate;
- (c) providing a layer of silicon nitride on the silicon dioxide layer;
- (d) providing a first masking layer on the silicon nitride layer and having an opening in the first masking layer of a dimension which substantially equals a dimension of a subsequently implanted channel stop of the first conductivity type;
- (e) etching away the exposed silicon nitride within the opening in the first masking layer;
- (f) implanting ions of the first conductivity type through the first masking layer and into the substrate for creating the channel stop and removing the first masking layer;
- (g) growing the silicon dioxide layer so that the channel stop is spanned by a thickest field silicon dioxide layer in the etched away portion;
- (h) patterning a second masking layer having an opening adjacent the channel stop with a dimension substantially equal to a dimension of a subsequently implanted lateral overflow drain of a second conductivity type;
- (i) etching away the exposed silicon nitride within the opening in the second masking layer;
- (j) implanting the second conductivity type for forming the lateral overflow drain and removing any remaining masking layer; and
- (k) growing the silicon dioxide layer so that a thicker silicon dioxide forms spanning the lateral overflow drain and the thickest silicon dioxide layer forms spanning the channel stop.

2. The method as in claim 1 further comprising the step of providing p type as the first conductivity type.

3. The method as in claim 1 further comprising the step of providing a buried channel of the second conductivity type within the substrate between the channel stops.

4. The method as in claim 1 further comprising the steps of removing the second masking layer immediately after step (i), providing a third masking layer, which third masking layer is patterned having an opening with a dimension substantially equal to a dimension of the lateral overflow drain, which is larger than the etched away portion of the silicon nitride in step (i) and continuing with step (j).

5. The method as in claim 1 further comprising the step of providing by eroding the second masking layer to an opening with a dimension substantially equal to a dimension of the lateral overflow drain after step (i) and before step (j).

6. A method for creating a lateral overflow drain, anti-blooming structure in a charge coupled device, the method comprising the steps of:

- (a) providing a substrate of a first conductivity type;
- (b) providing a layer of silicon dioxide on the substrate;
- (c) providing a layer of silicon nitride on the silicon dioxide layer;
- (d) providing a first masking layer on the silicon nitride layer and having an opening in the first masking layer of a dimension which substantially equals a dimension of a subsequently implanted channel stop of the first conductivity type;
- (e) etching away the exposed silicon nitride within the opening in the first masking layer;
- (f) implanting ions of the first conductivity type through the first masking layer and into the substrate for creating the channel stop and removing the first masking layer;

(g) patterning a second masking layer having an opening adjacent the channel stop with a dimension substantially equal to a dimension of a subsequently implanted lateral overflow drain of a second conductivity type;

(h) etching away the exposed silicon nitride within the opening in the second masking layer;

(i) implanting the second conductivity type for forming the lateral overflow drain and removing any remaining masking layer; and

(j) growing the silicon dioxide layer so that a thick silicon dioxide forms spanning the lateral overflow drain and the channel stop.

7. The method as in claim 6 further comprising the step of providing p type as the first conductivity type.

8. The method as in claim 6 further comprising the step of providing a buried channel of the second conductivity type within the substrate between the channel stops.

9. The method as in claim 6 further comprising the steps of removing the second masking layer immediately after step (h), providing a third masking layer, which third masking layer is patterned having an opening with a dimension substantially equal to a dimension of the lateral overflow drain, which is larger than the etched away portion of the silicon nitride in step (h) and continuing with step (i).

10. The method as in claim 6 further comprising the step of providing by eroding the second masking layer to an opening with a dimension substantially equal to a dimension of the lateral overflow drain after step (h) and before step (i).